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Appendix A – Administrative Record Index

SECTION 1: PRELIMINARY ASSESSMENTS

DOCUMENTS:

No. 34: *Historical Information Folder, Hanscom AFB Plans and 2 Aerial Photographs;* prepared by Hanscom AFB; circa April 1951 (Basewide).

No. 1: *IRP Phase I—Record Search;* prepared by JRB Associates; August 1984 (Basewide).

No. 104: *Specifications For Multi-Site UST Removal*; prepared by Army Corps of Engineers, August 1990 (IRP Sites 15 & 21).

No. 80: *Final Site-Specific Quality Management Plan, Multi-Site UST Removal*; prepared by LAW Environmental, September 1990 (IRP Sites 15 & 21).

No. 105: *Quality Control Test Results for Multi-Site UST Removal*; prepared by Army Corps of Engineers, February 1991 (IRP Sites 15 & 21).

No. 241: *Final Hazard Ranking System Package (REV 3.0), Hanscom AFB;* prepared by Halliburton NUS Environmental Corporation; April 1993 (Basewide).

No. 327: *Aerial Photographic Analysis, Hanscom AFB, Bedford, MA;* prepared by Lockheed Environmental Systems & Technologies Co., June 1998 (Basewide).

No. 408: *Report of Investigation: The Presence of Biological and Chemical Warfare Materiel at Hanscom Air Force Base;* prepared by Simulation Technologies, Inc., July 1999 (Basewide).

CORRESPONDENCE:

Letter to Hanscom AFB, from Alonzo B. Reed, Inc., regarding alteration/repair of the Entomology Facility; 17 Sep 90 (IRP Site 21).

Letter to the Hanscom AFB Base Civil Engineer, from MA DEP, regarding Notice of Responsibility, Bedford – ERB-N90-1494 Grenier Street - Building 1823 (fuel oil release at the RV lot); 25 Sep 90 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from MA DEP, regarding Bedford – ERB-N90-1494 Grenier Street—Building 1823 (fuel oil release at the RV lot); 6 Mar 91 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of *Aerial Photographic Analysis, Hanscom AFB, Bedford, MA;* July 1998.

Letter to Hanscom AFB Environmental Flight, from Air Force Research Laboratory, regarding review for the potential for the residual presence of CW and BW agents, munitions, and training devices, 23 Aug 99.

SECTION 2: SITE INSPECTIONS

DOCUMENTS:

No. 210: *Health and Safety Plan—Investigation, Design and Construction of Interim Remedial Action;* prepared by Zenone, Inc., October 1992 (IRP Site 21).

No. 180: *Preliminary Remedial Investigation, Interim Measure Design and Groundwater Recovery;* prepared by Zenone, Inc., March 1994 (IRP Site 21).

No. 279-A: *Final Report, Basewide Hydrogeological Survey;* prepared by RUST Environmental & Infrastructure, Inc.; January 1997 (IRP Sites 1 through 22).

SECTION 2: SITE INSPECTIONS (CONT.):

No. 279-B: *Basewide Hydrogeological Study Task 5—IRPIMS Data Entry;* prepared by RUST Environmental & Infrastructure, Inc., April 1997 (Basewide).

No. 324: *Final—Site Assessment, Building 1823 UST Site Investigation*; prepared by EA Engineering, Science, and Technology; June 1998 (IRP Site 21/Bldg 1823).

No. 396-1: *Request for Determination of Applicability Wetland Boundaries, Hanscom AFB - Bedford, MA*; prepared by LEC Environmental Consultants, Inc.; February 1995 (Basewide).

CORRESPONDENCE:

Letter to MA DEP, from the Hanscom AFB Deputy Base Civil Engineer, transmittal of Final RI/FS Report for Sites 6, 8 & 13, SOW for Site 21 SI and IRA, SOW for SRI at Sites 6 and 13, 13 Jul 92 MITRE letter concerning Site 6, and draft Site Investigation Report for Investigation of Suspected Hazardous Waste Sites; 11 Aug 92 (IRP Sites 6, 8, 13, 16, 17, 18, 19, 20 and 21).

Letter to US EPA, from the Hanscom AFB Deputy Base Civil Engineer, transmittal of Final RI/FS Report for Sites 6, 8 & 13, SOW for Site 21 SI and IRA, SOW for SRI at Sites 6 and 13, 13 Jul 92 MITRE letter concerning Site 6, and draft Site Investigation Report for Investigation of Suspected Hazardous Waste Sites; 11 Aug 92 (IRP Sites 6, 8, 13, 16, 17, 18, 19, 20 and 21).

SECTION 3: REMOVAL ACTIONS

DOCUMENTS:

IRP Site 21 Removal Actions:

No. 210: *Health and Safety Plan—Investigation, Design and Construction of Interim Remedial Action;* prepared by Zenone, Inc., October 1992 (IRP Site 21).

No. 180: *Preliminary Remedial Investigation, Interim Measure Design and Groundwater Recovery;* prepared by Zenone, Inc., March 1994 (IRP Site 21).

No. 229-2: *Statement of Work for Unit 1 Petroleum Spill;* prepared by Hanscom AFB, 11 Aug 94 (IRP Site 21).

No. 229-1: *Request For Proposals—Unit 1 Petroleum Spill Remedial Investigation/Feasibility Study and Release Abatement Measure;* prepared by Headquarters Electronics Systems Center, Air Force Materiel Command, Hanscom AFB; December 1994 (IRP Site 21).

No. 245-1: *Engineering Evaluation/Cost Analysis (EE/CA), OU-3 IRP Site 21*; prepared by Hanscom AFB, April 1995 (IRP Site 21).

No. 228: *Release Abatement Plan—Revised;* prepared by Kestrel Drilling and Remediation, June 1995 (IRP Site 21).

No. 245-2: *Action Memorandum, OU-3 IRP Site 21;* prepared by Hanscom AFB, July 1995 (IRP Site 21).

No. 245-3 Public Review Documents, *Installation Restoration Program Engineering Evaluation/Cost Analysis Operable Unit 3/IRP Site 21*; prepared by Hanscom AFB, 14 July 95 (IRP Site 21).

No. 348: *Technical Work Plan for Demonstration of Vacuum-Enhanced Recovery (VER) Technology at IRP Site 21;* prepared by Geraghty & Miller, February 1999 (IRP Site 21).

No. 395: *Draft - VER System O&M Manual for IRP Site 21;* prepared by Hanscom AFB, September 2000 (IRP Site 21).

SECTION 3: REMOVAL ACTIONS (CONT.):

No. 419: *Draft - Basewide Quality Assurance Project Plan (QAPP) for LTM @ OU1 & OU3/Sites 6 & 21*- 2 Volumes*;* prepared by IT Corporation, May 2001 (IRP Sites 1, 2, 3, 4, 6 & 21).

No. 420: *Final - Environmental Health & Safety Plan for O, M & M of OU-1, Maintenance of OU-2 (Site 4), Removal Action at OU-3/Site 21 and Remedial Action at OU-3/Site 6;* prepared by IT Corporation, May 2001 (IRP Sites 1, 2, 3, 4, 6 & 21).

IRP Site 21 Removal Action – Operational Reports

No. 188: *Interim Measure—Monthly Monitoring Reports*; 25 Mar-27 Apr 93; prepared by Zenone, Inc., May 1993 (IRP Site 21).

No. 187: *Interim Measure—Monthly Monitoring Reports*; 27 Apr-15 Jun 93; prepared by Zenone, Inc., June 1993 (IRP Site 21).

No. 186: *Interim Measure—Monthly Monitoring Reports*; 16 Jun-15 Jul 93; prepared by Zenone, Inc., July 1993 (IRP Site 21).

No. 185: *Interim Measure—Monthly Monitoring Reports*; 16 Jul-16 Aug 93; prepared by Zenone, Inc., August 1993 (IRP Site 21).

No. 184: *Interim Measure—Monthly Monitoring Reports*; 17 Aug-15 Sep 93; prepared by Zenone, Inc., September 1993 (IRP Site 21).

No. 183: *Interim Measure—Monthly Monitoring Reports*; 16 Sep-15 Oct 93; prepared by Zenone, Inc., October 1993 (IRP Site 21).

No. 181: *Interim Measure—Compilation of Monitoring Reports;* Mar-Dec 93; prepared by Zenone, Inc., December 1993 (IRP Site 21).

No. 182: *Interim Measure—Monthly Monitoring Reports*; 16 Oct-15 Dec 93; prepared by Zenone, Inc., December 1993 (IRP Site 21).

No. 258: *Quarterly Status Report—Interim Remedial Action at Site 21, 9/28-12/31/95*; prepared by Kestrel Drilling and Remediation, January 1996 (IRP Site 21).

No. 262: *Quarterly Status Report—Interim Remedial Action at Site 21, 1/1-3/31/96*; prepared by Kestrel Drilling and Remediation, April 1996 (IRP Site 21).

No. 286: *Quarterly Status Report—Interim Remedial Action at Site 21, 4/1-6/30/96*; prepared by Kestrel Drilling and Remediation, July 1996 (IRP Site 21).

No. 287: *Quarterly Status Report—Interim Remedial Action at Site 21, 7/1-9/30/96*; prepared by Kestrel Drilling and Remediation, February 1997 (IRP Site 21).

No. 288: *Quarterly Status Report—Interim Remedial Action at Site 21, 10/1-12/31/96*; prepared by Kestrel Drilling and Remediation, February 1997 (IRP Site 21).

No. 290: *Quarterly Status Report—Interim Remedial Action at Site 21, 1/1-3/31/97*; prepared by Kestrel Drilling and Remediation, May 1997 (IRP Site 21).

No. 300: *Quarterly Status Report—Interim Remedial Action at Site 21, 4/1-6/30/97*; prepared by Environmental Compliance Services, July 1997 (IRP Site 21).

No. 302: *Quarterly Status Report—Interim Remedial Action at Site 21, 7/1-9/30/97*; prepared by Environmental Compliance Services, December 1997 (IRP Site 21).

SECTION 3: REMOVAL ACTIONS (CONT.):

No. 330: *Quarterly Status Report—Interim Remedial Action at Site 21, 10/1-12/31/97*; prepared by Environmental Compliance Services, January 1998 (IRP Site 21).

No. 331: *Quarterly Status Report—Interim Remedial Action at Site 21, 1/1-3/31/98*; prepared by Environmental Compliance Services, April 1998 (IRP Site 21).

No. 346: *Quarterly Status Report—Interim Remedial Action at Site 21, 4/1-6/30/98;* prepared by Environmental Compliance Services, January 1999 (IRP Site 21).

No. 347: *Quarterly Status Report—Interim Remedial Action at Site 21, 7/1-10/31/98*; prepared by Environmental Compliance Services, January 1999 (IRP Site 21).

IRP Site 21 Removal Action – Groundwater Monitoring Reports:

No. 375: *Letter Report on April 1999 Groundwater Monitoring at Site 21*; prepared by Hanscom AFB, June 1999 (IRP Site 21).

No. 376: *Letter Report on July 1999 Groundwater Monitoring at Site 21;* prepared by Hanscom AFB, August 1999 (IRP Site 21).

No. 378: *Letter Report on May 2000 Groundwater Monitoring at Site 2*; prepared by Hanscom AFB, June 2000 (IRP Site 21).

No. 378-1: *IRP Site 21 Removal Action/Groundwater Sampling & Analysis*; prepared by CH2M Hill, 12 Jun 2000 (IRP Site 21).

No. 378-2: *Groundwater Monitoring Memorandum;* prepared by CH2M Hill, 17 Jul 00 (IRP Site 21).

No. 403: *Letter Report on October 2000 Groundwater Monitoring at Site 21*; prepared by Hanscom AFB, 7 February 2001 (IRP Site 21).

No. 412-1: *Analytical Data Package Report for Long Term Monitoring of OU-3/IRP Site 21 (January 2001 Samples)*; prepared by IT Corporation; April 2001 (IRP Site 21).

No. 412-2: *Data Validation Report for OU-3/IRP Site 21 Groundwater Samples (January 2001 Samples)*; prepared by Meridian Science & Technology; March 2001 (IRP Site 21).

CORRESPONDENCE:

Letter to the Commander, 3245 ABG, from US EPA, regarding exclusion from the NPDES requirements for the Recovery & Treatment System; 5 Sep 90 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from MA DEP, regarding Interim Measure Conditional Approval for Bldg. 1823/Notice of Responsibility; 4 Dec 90 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from GZA Remediation, Inc., regarding pilot product recovery at Bldg. 1823, 14 May 91 (IRP Site 21).

Letter to US EPA, from Hanscom AFB Environmental Flight, transmittal of Pilot Product Recovery Project Final Report; 17 Jul 91 (IRP Site 21; Operable Unit 1).

Letter to MA DEP, from Hanscom AFB Environmental Flight, transmittal of Pilot Product Recovery Project Final Report; 22 Jul 91 (IRP Site 21; Operable Unit 1).

SECTION 3: REMOVAL ACTIONS (CONT.):

Letter to the Secretary of Environmental Affairs (copies to US EPA et al.), from the Hanscom AFB Base Civil Engineer, transmittal of an Environmental Notification Form for an Interim Action; 1 Jul 92 (IRP Site 21).

Letter to MA DEP, from the Hanscom AFB Deputy Base Civil Engineer, transmittal of Final RI/FS Report for Sites 6, 8 & 13, SOW for Site 21 SI and IRA, SOW for SRI at Sites 6 and 13, 13 Jul 92 MITRE letter concerning Site 6, and draft Site Investigation Report for Investigation of Suspected Hazardous Waste Sites; 11 Aug 92 (IRP Sites 6, 8, 13, 16, 17, 18, 19, 20 and 21).

Letter to US EPA, from the Hanscom AFB Deputy Base Civil Engineer, transmittal of Final RI/FS Report for Sites 6, 8 & 13, SOW for Site 21 SI and IRA, SOW for SRI at Sites 6 and 13, 13 Jul 92 MITRE letter concerning Site 6, and draft Site Investigation Report for Investigation of Suspected Hazardous Waste Sites; 11 Aug 92 (IRP Sites 6, 8, 13, 16, 17, 18, 19, 20 and 21).

Certificate of the Secretary of Environmental Affairs on the Environmental Notification Form, from the MA Executive Office of Environmental Affairs; 31 Aug 92 (IRP Site 21).

Letter to Hanscom AFB, from the MA DEP, regarding the Unit 1 Petroleum Spill Interim Measure Approval; 23 Dec 92 (IRP Site 21).

Letter to the MA DEP, from the Hanscom AFB Base Civil Engineer, transmittal of SOW for Site 21 MCP RAM, Phase II and Phase III and Final Report on RI and Interim Action, 1 Jun 94 (IRP Site 21).

Letter to the US EPA, from the Hanscom AFB Base Civil Engineer, transmittal of Final Report on RI and Interim Action, 1 Jun 94 (IRP Site 21).

Letter to the Massachusetts Department of Environmental Protection, from Kestrel Drilling and Remediation, regarding the Pilot Test Proposal for IRP Site 21 Removal Action; 11 Jan 95 (IRP Site 21).

Letter to the Hanscom AFB Environmental Flight, from US EPA, regarding the EPA's recommended course of action for OU-3; 3 Feb 95 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from the US Environmental Protection Agency, regarding the Release Abatement Measure Plan for IRP Site 21; 26 Apr 95 (IRP Site 21).

Letter to US EPA and MA DEP, from Hanscom AFB Environmental Flight, regarding the Engineering Evaluation/Cost Analysis for IRP Site 21; 8 May 95 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from the US Environmental Protection Agency, regarding the Action Memorandum and Responsiveness Summary for Removal Action at OU-3/IRP Site 21; 12 Jun 95 (IRP Site 21).

Letter to US EPA and MA DEP, from Hanscom AFB Environmental Flight, regarding response to EPA's comments on Kestrel Drilling and Remediation's Release Abatement Measure Plan for IRP Site 21; 8 May 95 (IRP Site 21).

Letter to US EPA, from CH2M Hill, regarding monitoring of groundwater elevations at IRP Site 6; 21 Jul 95 (IRP Site 6 and Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding exclusion from a National Pollutant Discharge Elimination System permit; 19 Sep 95 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding the IRP Site 21 Quarterly Status Report; 15 Apr 96 (IRP Site 21).

SECTION 3: REMOVAL ACTIONS (CONT.):

Letter to US EPA and MA DEP, from Hanscom AFB Environmental Flight, regarding the IRP Site 21 Removal Action; 9 Feb 99 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding the Technical Work Plan for demonstration of Vacuum Enhanced Recovery (VER) Technology at IRP Site 21; 17 Feb 99 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding the Draft Remedial Investigation and Interim Remedial Action Work Plan; 23 Mar 99 (IRP Site 21).

Letter to US EPA and MA DEP, from Hanscom AFB Environmental Flight, regarding the IRP Site 21 Removal Action/transmittal of Groundwater Sampling & Analysis for 8 Apr 99; 21 Jun 99 (IRP Site 21).

Letter to US EPA and MA DEP, from Hanscom AFB Environmental Flight, regarding the IRP Site 21 Removal Action/transmittal of Groundwater Sampling and Analysis for 20 Jul 99; 2 Aug 99 (IRP Site 21).

Letter to US EPA and MA DEP, from Hanscom AFB Environmental Flight, regarding the IRP Site 21 Removal Action/transmittal of Groundwater Sampling and Analysis; 12 Jun 00 Corrected (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding the OU1 VER Demonstration Technical Report, OU1 Quarterly Toxic Evaluation of Discharge Report and Site 21 Groundwater Analysis for May 2000; 9 Aug 00 (OU1, IRP Site 1 and IRP Site 21).

Letter to AFCEE/ERD (copies to US EPA and MA DEP), from IT Corp., transmittal of Revised Basewide Quality Assurance Project Plan (QAPP) for OU-1 & OU-3 (IRP Sites 6 & 21); 31 May 01 (OU-1 & IRP Sites 6 & 21).

SECTION 4: REMEDIAL INVESTIGATIONS

DOCUMENTS:

No. 229-2: *Statement of Work for Unit 1 Petroleum Spill;* prepared by Hanscom AFB, 11 Aug 94 (IRP Site 21).

No. 229-1: *Request For Proposals—Unit 1 Petroleum Spill Remedial Investigation/Feasibility Study and Release Abatement Measure;* prepared by Headquarters Electronics Systems Center, Air Force Materiel Command, Hanscom AFB; December 1994 (IRP Site 21).

No. 205: Soil Gas Survey Results; prepared by Kestrel Drilling and Remediation, 28 July 1995 (IRP Site 21).

No. 357: *Data Usability Assessment;* prepared by CH2M Hill; August 1995 (Basewide).

No. 259-1: *Memorandum on Shawsheen River Chronic Toxicity Test Results;* prepared by US Environmental Protection Agency Northeast Regional Laboratory; December 1995 (Basewide).

No. 259-2: *Analytical Results of Sampling Shawsheen River at USGS Gaging Station;* prepared by Metcalf & Eddy Inc.; December 1995 (Basewide).

No. 259-3: *Hanscom AFB Stormwater Quality Testing Program;* prepared by Rizzo Associates, Inc.; January 1996 (Basewide).

No. 242: *Human Health Risk Assessment Work Plan—Final Report;* prepared by CH2M Hill; July 1996 (Basewide).

SECTION 4: REMEDIAL INVESTIGATIONS (CONT.):

No. 243: *Ecological Risk Assessment Methodology and Problem Formulation—Final Report;* prepared by CH2M Hill; July 1996 (Basewide).

No. 313: *Draft—Field Investigation Technical Memorandum for Sites 6 and 21*; prepared by CH2M Hill, April 1997 (OU-3: IRP Sites 6 and 21).

No. 304: *Response to EPA Comments for Remedial Investigation Work Plan, Site 21*; prepared by Environmental Compliance Services, June 1997 (IRP Site 21).

No. 248: *Final—Remedial Investigation Work Plan, IRP Site 21;* prepared by Environmental Compliance Services, August 1997 (IRP Site 21).

No. 250: *Final Report, Comprehensive Ecological Analysis;* prepared by LEC Environmental Consultants, Inc.; August 1997 (Basewide, 2 volumes).

No. 379: *CH2M Hill Health and Safety Plan*; prepared by CH2M Hill, March 1999 (IRP Site 21).

No. 334: *Final—Remedial Investigation, IRP Site 21 (6 volumes);* prepared by Environmental Compliance Services, April 1999 (IRP Site 21).

No. 370: *Final—Supplemental Remedial Investigation Report, IRP Site 21;* prepared by CH2M Hill, July 2000 (IRP Site 21).

CORRESPONDENCE:

Letter to the MA DEP, from the Hanscom AFB Base Civil Engineer, transmittal of SOW for Site 21 MCP RAM, Phase II and Phase III and Final Report on RI and Interim Action, 1 Jun 94 (IRP Site 21).

Letter to the US EPA, from the Hanscom AFB Base Civil Engineer, transmittal of Final Report on RI and Interim Action, 1 Jun 94 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from the US Environmental Protection Agency, regarding the SOW for Wetlands/Endangered Species/Archaeological and Historical Study of Hanscom AFB; 18 Jan 1995 (Basewide).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding EPA's recommended course of action for OU-3; 3 Feb 95 (IRP Sites 6 and 21).

Letter to Hanscom AFB Environmental Flight, from LEC Corporation, regarding LEC's Scope of Services; 27 Feb 1995 (Basewide).

Letter to US EPA, from Hanscom AFB Environmental Flight, transmittal of schedule for Ecological/Baseline Risk assessment and Community Relations Plan revision; 8 May 95 (Basewide).

Email to Hanscom AFB Environmental Flight and the MA Department of Environmental Protection, from USEPA, transmittal of comments on the IRP Site 21 Soil Gas Survey; 8 Jun 95 (IRP Site 21).

Email to Hanscom AFB Environmental Flight, from US EPA, regarding Kestrel's response to EPA Comments on the IRP Site 21 Soil Gas Survey, 14 Jun 95 (IRP Site 21).

Letter to the US Environmental Protection Agency, from CH2M Hill, regarding the Shawsheen River surface water and sediment sampling locations; 18 Jul 1995 (IRP Sites 6 and 21).

Letter to US EPA, from CH2M Hill, regarding monitoring of groundwater elevations at IRP Sites 6 and 21; 21 Jul 95 (IRP Site 21).

SECTION 4: REMEDIAL INVESTIGATIONS (CONT.):

Letter to US EPA, from CH2M Hill, transmittal of the Data Usability Assessment for Hanscom AFB IRP data; 24 Aug 95 (IRP Sites 1, 2, 3, 4, 5, 6, 7, 8, 13, 19, 20, 21 & 22).

Letter to Hanscom AFB Environmental Flight (copy to US EPA), from CDM Federal Programs Corporation, regarding IRP Site 21 proposed well locations; 30 Aug 95 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding the EPA's comments on the Data Usability Assessment for Hanscom AFB IRP data; 27 Sep 95 (IRP Sites 1, 2, 3, 4, 5, 6, 7, 8, 13, 19, 20, 21 & 22).

Letter of Transmittal to US EPA, from Kestrel Drilling and Remediation; transmittal of the Remedial Investigation Work Plan for Site 21; 8 Dec 95 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of Comments on the Draft Ecological Risk Assessment Methodology and the Draft Problem Formulation; 11 Dec 95 (OUs 1, 2, 3 & 4).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of Comments on the Draft Final Human Health Risk Assessment Work Plan; 12 Dec 95 (OUs 1, 2, 3 & 4).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of Comments on the Remedial Investigation Work Plan for Site 21; 26 Jan 96 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from CH2M Hill, regarding Kestrel Drilling and Remediation IRP Site 21 RI Work Plan; 15 Feb 96 (IRP Site 21).

Letter to US EPA, from CH2M Hill, transmittal of responses to EPA's comments on the Human Health Risk Assessment Work Plan; 11 Mar 96 (OUs 1, 2, 3 & 4).

Letter to US EPA, from CH2M Hill, minutes of the 19 Dec 95 meeting to discuss EPA comments on the Draft Ecological Risk Assessment Methodology and Draft Problem Formulation; 11 Mar 96 (OUs 1, 2, 3 & 4).

Memo for MA DEP, from Hanscom AFB Environmental Flight, regarding the Site 20 Soil Gas Survey and Hanscom AFB Storm Water Quality Testing; 22 Mar 96 (IRP Site 20 & Basewide).

Memo for US EPA, from Hanscom AFB Environmental Flight, regarding the Site 20 Soil Gas Survey and Hanscom AFB Storm Water Quality Testing; 22 Mar 96 (IRP Site 20 & Basewide).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding responses to EPA's comments on the Human Health Risk Assessment Work Plan and the Draft Ecological Risk Assessment Methodology and Draft Problem Formulation; 14 Jun 96 (OUs 1, 2, 3 & 4).

Letter to US EPA, from CH2M Hill, transmittal of the Final Ecological Risk Assessment Methodology and Problem Formulation and the Final Human Health Risk Assessment for OU-1, -2, -3, and –4; 11 Jul 96 (OUs 1, 2, 3, & 4).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding approval of the Work Plan for Remedial Investigation at Site 21; 28 Aug 97 (IRP Site 21).

Letter to the US EPA and the MA Department of Environmental Protection, from Hanscom AFB Environmental Flight, transmittal of the Final Report on the Comprehensive Ecological Analysis of Hanscom AFB and Report entitled Ecological Analysis Capped Landfill Area 4; 7 Oct 1998 (Basewide and Site 4).

SECTION 4: REMEDIAL INVESTIGATIONS (CONT.):

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of Comments on the Site 21 Draft RI Report 5 Feb 99 (Site 21).

Letter to Hanscom AFB Environmental Flight, from MA DEP, transmittal of Comments on the Site 21 Draft RI Report 9 Feb 99 (Site 21).

Letter to US EPA and MA DEP, from Hanscom AFB Environmental Flight, regarding the Draft Remedial Investigation for IRP Site 21; 3 Mar 99 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from MA DEP, regarding the Draft Remedial Investigation of IRP Site 21; 16 Mar 99 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding response to EPA's Comments on the Draft Remedial Investigation and the Site 21 Interim Remedial Action Work Plan; 23 Mar 99 (IRP Site 21).

Letter to US EPA with copy to MA DEP, from ECS,Inc., transmittal of changes to finalized RI; 28 Apr 99 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, accepting the Site 21 Remedial Investigation Report; 17 Nov 99 (IRP Site 21).

Letter to US EPA (copy to MA DEP), from CH2M Hill, transmittal of the Draft Supplemental Remedial Investigation Report for OU-3/Site 21; 28 Mar 00 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of Comments on the Draft Supplemental Remedial Investigation Report for OU-3/Site 21; 27 Apr 00 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from MA DEP, regarding the Revised Ecological Risk Assessment and Human Health Risk Assessment of IRP Site 21; 26 Jun 00 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding responses to EPA's Comments on the Draft Remedial Investigation and Revised Human Health Risk Assessment of IRP Site 21; 29 Jun 00 (IRP Site 21).

Letter to US EPA (copy to MA DEP), from CH2M Hill, transmittal the Final Site 21 Supplemental Remedial Investigation Report; 12 Jul 2000 (IRP Site 21).

Letter to US EPA (copy to MA DEP), from CH2M Hill, regarding a correction to the Final Site 21 Supplemental Remedial Investigation Report; 19 Jul 00 (IRP Site 21).

SECTION 5: FEASIBILITY STUDIES

DOCUMENTS:

No. 405: *Final—Feasibility Study—OU-3/ Site 21*; prepared by CH2M Hill, June 2001 (IRP Site 21).

CORRESPONDENCE:

Letter to US EPA and MA DEP, from Hanscom AFB Environmental Flight, regarding Feasibility Study, OU-3/IRP Site 21, 27 Nov 00 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding Remedial Alternatives for OU-3/IRP Site 21 Feasibility Study, 27 Nov 00 (IRP Site 21).

Letter to US EPA from CH2M Hill, transmittal of the Draft OU-3/Site 21Feasibility Study, 1 March 2001 (IRP Site 21).

SECTION 5: FEASIBILITY STUDIES (CONT.):

Letter to MA DEP from CH2M Hill, transmittal of the Draft OU-3/Site 21 Feasibility Study, 1 March 2001 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of Comments on the Draft Feasibility Study for OU-3/IRP Site21; 1 May 2001 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of Comments on the Draft Final Feasibility Study for OU-3/IRP Site21; 31 May 2001 (IRP Site 21).

Letter to US EPA from CH2M Hill, transmittal of the Final OU-3/IRP Site 21Feasibility Study, 11 June 2001 (IRP Site 21).

Letter to MA DEP from CH2M Hill, transmittal of the Final OU-3/IRP Site 21Feasibility Study, 11 June 2001 (IRP Site 21).

Letter to US EPA (copy to MA DEP) from CH2M Hill, transmittal of Response to Comments on the OU-3/ IRP Site 21 Feasibility Study, 11 June 2001 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of concurrence with Final FS for OU-3/IRP Site 21; 19 Jun 2001 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of Concurrence with Final FS and Comments on the Draft Proposed Plan for OU-3/IRP Site 21; 3 July 2001 (IRP Site 21).

SECTION 6: PROPOSED PLANS

DOCUMENTS:

No.: 421 *Final—Proposed Plan for OU-6/Site 21*; prepared by CH2M Hill, July 2001 (IRP Site 21).

CORRESPONDENCE:

Letter to Hanscom AFB Environmental Flight, from US EPA, transmittal of concurrence with Final FS and Comments on the Draft Proposed Plan for OU-3/IRP Site 21; 3 July 2001 (IRP Site 21).

Letter to US EPA, from CH2M Hill , submittal of the OU-3/IRP Site 6 Final Proposed Plan; 10 July 01 (IRP Site 21).

Letter to MA DEP, from CH2M Hill , submittal of the OU-3/IRP Site 6 Final Proposed Plan; 10 July 01 (IRP Site 21).

SECTION 7: RECORDS OF DECISION

DOCUMENTS:

No.: 422 *ROD for OU-6/Site 21*; prepared by CH2M Hill, July 2001 (IRP Site 21).

CORRESPONDENCE:

Letter to US EPA, from CH2M Hill, transmittal of Draft ROD for OU-3/IRP Site 21; Jul 2001 (IRP Site 21).

Letter to MA DEP, from CH2M Hill, transmittal of Draft ROD for OU-3/IRP Site 21; Jul 2001 (IRP Site 21).

SECTION 8: POST RECORD OF DECISION

DOCUMENTS:

CORRESPONDENCE:

Letter to AFCEE/ERD (copies to US EPA and MA DEP), from IT Corp., transmittal of Revised Basewide Quality Assurance Project Plan (QAPP) for OU-1 & OU-3 (IRP Sites 6 & 21); 31 May 01 (OU-1 & IRP Sites 6 & 21).

SECTION 9: COMMUNITY RELATIONS

DOCUMENTS:

No. 197: *Restoration Advisory Board (RAB) Minutes,* prepared by Hanscom AFB, 29 Nov 94 to present (3 binders).

No. 355: *Community Relations Plan for CERCLA (Superfund) Remedial Response Actions and Removal Actions;* prepared by Hanscom AFB; April 1999 (Basewide).

CORRESPONDENCE ETC.:

Folder containing articles referring to Hanscom AFB environmental issues; articles date from 29 Apr 82 to present; various sources.

Letter to US EPA, from Hanscom AFB Environmental Flight, transmittal of schedule for Ecological/Baseline Risk assessment and Community Relations Plan revision; 8 May 95 (Basewide).

Memorandum to Restoration Advisory Board Members, from Hanscom AFB Environmental Flight, regarding the IRP Site Relative Risk Evaluations; 14 Jun 95 (Basewide).

Transmittal to Hanscom AFB Environmental Flight, from CH2M Hill, forwarding Community Interviews conducted by CH2M Hill in May 1995, also includes letter of thanks to participants; 22 Jun 95

Letter to Assistant Secretary of the Air Force (Environment, Safety & Occupational Health), from Deputy Under Secretary of Defense (Environmental Security); regarding a visit by the Deputy Under Secretary of Defense to Boston and Hanscom AFB; 26 Feb 96.

Memorandum to RAB Member, from Hanscom AFB Environmental Flight, regarding Notice of Change due to Under Secretary of Defense visit; 1 Apr 96.

Memorandum to RAB Member, from Hanscom AFB Environmental Flight, regarding April 11, 1996 Dinner Meeting with Under Secretary of Defense; 3 Apr 96.

Letter to Bedford Town Administrator, from RAB member, regarding the current status of Superfund sites in Bedford; 12 Sep 97.

Email to Public Affairs, from Hanscom AFB Environmental Flight, regarding an article published in the Boston Globe; 17 Mar 98.

Letter to Restoration Advisory Board Members, from Hanscom AFB Environmental Flight, IRP Update and transmittal of draft Proposed Plan for Operable Unit 3/Site 21; 15 Jun 01 (IRP Site 21).

Letter to Restoration Advisory Board Members, from Hanscom AFB Environmental Flight, transmittal of the Final Proposed Plan and of regarding the Public Review Period and August 1st, 2001 Informational meeting and Public Hearing for the OU-3/IRP Site 21 Proposed Plan; 10 Jul 01 (IRP Site 21).

SECTION 9: COMMUNITY RELATIONS (CONT.):

Technical Review Committee Documents:

Letter to Abutters and other Stakeholders, from Hanscom AFB Environmental Flight, regarding times for the Public Meeting and Hearing involving the Proposed Plan for OU-3/IRP Site 6; 16 Jun 00 (IRP Site 6).

Compilation of letters to stakeholders, from ESC Commander, regarding establishment of the Technical Review Committee (TRC); 22 Feb 93.

Stakeholder responses to 22 Feb letter regarding TRC establishment; various dates; March 93.

Memorandum to members of the TRC, announcing the first meeting; 21 May 93.

Memorandum to US EPA, transmitting Management Action Plan (MAP) and announcing the first meeting of the TRC; 28 May 93.

Minutes of the first TRC meeting, 1 Jun 93.

Memorandum to TRC members, from the Chief, Hanscom AFB Environmental Flight, announcing the second meeting of the TRC; 10 Dec 93.

Minutes of the second TRC meeting, 15 Dec 93.

Restoration Advisory Board (RAB) Documents:

Restoration Advisory Board startup timeline, August 1994.

"Hanscom Air Force Base Seeks Area Residents for Environmental Advisory Group", Hanscom AFB news release regarding solicitation for members, 9 Sep 94.

Restoration Advisory Board membership applications, October 1994.

"Restoration Advisory Board Meeting Set", Hanscom AFB news release regarding the first RAB meeting; 29 Nov 94.

Memorandum to HQ AFMC/CEVR, from Hanscom AFB Environmental Flight, regarding RAB status report; 17 Nov 94.

"Hanscom Board Meets Nov. 29", Hanscom AFB press release regarding the first meeting of the RAB, 29 Nov 94.

Restoration Advisory Board Charter, containing purpose, founding members, objective, etc.; approved 28 Feb 95 at RAB meeting.

SECTION 10: PROGRAM GUIDANCE

DOCUMENTS:

No. 257-1: *Base Comprehensive Plan, Vol. I and II;* prepared by Benham GP, September 1991 (Basewide).

No. 257-2: *General Plan, Hanscom Air Force Base;* prepared by Michael Baker Jr., Inc. & Applied Geographics Inc., October 1998. (Basewide-replaces 257-1).

No. 148: *Hanscom AFB's Initial Management Action Plan (MAP);* prepared by Radian Corporation; December 1992 (Basewide).

SECTION 10: PROGRAM GUIDANCE (CONT.):

No. 222: *Management Action Plan (MAP)—Fiscal Year 1993;* prepared by Hanscom AFB; December 1992 (Basewide).

No. 223: *Management Action Plan (MAP)—Fiscal Year 1994;* prepared by Hanscom AFB; December 1993 (Basewide).

No. 224: *Management Action Plan (MAP)—Fiscal Year 1995;* prepared by Hanscom AFB; January 1995 (Basewide).

No. 356: *Management Action Plan (MAP)—Fiscal Year 1999;* prepared by Hanscom AFB, April 1999 (Basewide).

No. 125: *U.S. Air Force Restoration Program Remedial Project Manager's Handbook;* prepared by HQ USAF/ILEVR, revised 2000.

CORRESPONDENCE:

Letter to Hanscom AFB Environmental Flight, from the Deputy Director, Environmental Protection, regarding Public Affairs guidance for upcoming records searches for possible hazardous material sites; 20 Mar 81.

Memorandum of Understanding between the Department of Defense and the Environmental Protection Agency clarifying each agency's responsibilities with regards to response actions; 12 Aug 83.

Letter to Hanscom AFB Environmental Flight, from the Massachusetts Department of Environmental Quality Engineering, regarding IRP Fast-Track efforts; 5 Nov 85.

Letter to Hanscom AFB Environmental Flight, from MA DEQE, regarding groundwater contamination at Hanscom; 28 Apr 86.

Letter to Hanscom AFB Civil Engineering Squadron, from MA DEQE, regarding HAFB Base Studies; 21 Aug 86.

Letter to Hanscom AFB Base Commander, from US EPA, requesting scheduling of a meeting regarding the EPA's and Hanscom's roles as defined by the Superfund Act; 29 May 87.

Memo for record, from Hanscom AFB Environmental Flight, regarding the IRP update and a review meeting with MA DEQE; 6 Jul 88.

Letter to Hanscom AFB Environmental Flight, from MA DEP, regarding sites contained on the 1993 Transition List; 23 Jul 93.

Letter to Headquarters Air Force Materiel Command, from SAF/MIQ, regarding the proposed placement of Hanscom AFB on the NPL; 31 May 1994.

Letter to the Deputy Undersecretary of Defense (Environmental Security), from Air Force Materiel Command, regarding Hanscom AFB's status on the NPL; 14 Jun 1994.

Letter to 647 Air Base Group/Environmental Flight, from Headquarters Air Force Materiel Command, regarding expedited NPL cleanup; 17 Jun 1994.

Letter to the Chief, Environmental Flight, from the Commonwealth of Massachusetts Department of Environmental Protection (also signed by US EPA), regarding Hanscom AFB's placement on the NPL; 18 Aug 1994.

SECTION 10: PROGRAM GUIDANCE (CONT.):

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding determination of sites to be regulated by the EPA; 13 Jan 95.

Letter to the Hanscom AFB Environmental Flight, from US EPA, regarding the Scope of Work for the basewide Wetlands/Endangered Species/Archaeological Study at Hanscom; 18 Jan 95.

Letter to Hanscom AFB Environmental Flight, from the US EPA, regarding the EPA's recommended course of action for OU-3/IRP Sites 6 and 21; 3 Feb 95 (OU-3: IRP Sites 6 and 21).

Consensus Statement #1 between the US Environmental Protection Agency, the MA Department of Environmental Protection, and Hanscom AFB, regarding the institution of Consensus Statements to document decisions; 22 Feb 95 (all IRP sites).

Consensus Statement #3 between the USEPA, MADEP, and Hanscom AFB, regarding the division of contaminated areas within Hanscom AFB into Operable Units; 7 Mar 1995 (OU-1, OU-2, OU-3, and OU-4).

Letter to US EPA, from CH2M Hill, regarding data quality objectives for Human Health and Ecological Risk Assessments; 24 Apr 95.

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding data quality objectives for the Human Health and Ecological Risk Assessment; 8 May 95.

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding the Restoration Advisory Board meeting on 23 May 95; 6 Jun 95.

Consensus Statement #6 between the USEPA, MADEP, and Hanscom AFB, regarding the removal of IRP Site 13 from OU-4 and site organization information, 7 Sep 1995 (all IRP sites).

Letter to Hanscom AFB Environmental Flight, from MA DEP, regarding the deadline for an evaluation of a non-priority disposal site; 31 May 96 (IRP Site 21).

Letter to MA DEP, from Hanscom AFB Environmental Flight, transmitting Site Status Report; 19 Mar 97.

Letter to Hanscom AFB Environmental Flight, from MA DEP, regarding Tier 1 Disposal Sites; 2 Jun 97.

Fax to MA DEP, from Hanscom AFB Environmental Flight, regarding 2 Jun DEP letter/Bldg. 1823 petroleum spill; 10 Jun 97.

Letter to Hanscom AFB Environmental Flight, from MA DEP, regarding the deadline for an evaluation of a LTBI; 24 Jun 97 (IRP Site 21).

Fax to MA DEP, from Hanscom AFB Environmental Flight, regarding the deadline for an evaluation of a LTBI; 7 Jul 97 (IRP Site 21).

Letter to Hanscom AFB Environmental Flight, from US EPA, regarding project scheduling; 1 Oct 97.

Letter to Hanscom AFB, from US EPA, regarding OU-3/Site 21; 29 Jan 98 (IRP Site 21).

Letter to the Bureau of Waste Site Cleanup, MA Department of Environmental Protection, from the United States Environmental Protection Agency, requesting Groundwater Use and Value Determination at Hanscom AFB; 15 Sep 1998.

Letter to the United States Environmental Protection Agency, from the MA Department of Environmental Protection, regarding Groundwater Use Determination at the Hanscom AFB Superfund site; 15 Oct 1998.

SECTION 10: PROGRAM GUIDANCE (CONT.):

Letter to AFMC/CEVR, from Hanscom AFB Environmental Flight, regarding Policy Memorandum on Implementing the CERCLA Permit Exclusion; 23 Apr 99.

Letter to Hanscom AFB Environmental Flight, from AFMC/CEVR, regarding DOD Interim Policy on Integration of Natural Resource Injury Responsibilities and Environmental Restoration Activities; 30 Jun 00.

Appendix B – Responsiveness Summary

Responsiveness Summary

Installation Restoration Program
Hanscom Air Force Base
Operable Unit-3/ IRP Site 21

Overview

Following completion of the Feasibility Study (FS) for Operable Unit-3/Installation Restoration Program Site 21 (OU-3/IRP Site 21), Hanscom Air Force Base (AFB) identified a preferred remedial action for the site which was provided to the public for comment in the Proposed Plan (PP). The preferred alternative involves the installation of 3 interceptor trenches and a network of recovery wells to remove product, enhancing biodegradation of dissolved contaminants by applying ORC® in all trenches, monitoring, land use controls/institutional controls, and contingencies for using the interceptor trenches to contain/treat contaminated groundwater and to convert some of the recovery wells to vacuum enhanced product recovery wells.

Judging from the limited number of comments received during the public comment period, it appears the community supports the proposed remedial alternative for OU-3/IRP Site 21.

Background on Community Involvement

The Massachusetts Department of Environmental Protection (MADEP) is aware of the nature of the proposed remedial alternative for OU-3/IRP Site 21, and has been involved in reviewing the remedial investigation and feasibility study reports and planning efforts. The community has been kept advised of the OU-3/IRP Site 21 conditions through regular meetings of a Technical Review Committee (TRC) established in 1993 which was subsequently converted/expanded to a Restoration Advisory Board (RAB) which includes residents of the surrounding communities. The RAB was established in 1994 and has been meeting regularly with updates and discussions related to OU-3/IRP Site 21 investigations and remedial action planning. The RAB meetings have been open to the public, and notices have been published in local newspapers identifying the date, time, and location of the meetings.

The public comment period for the OU-3/IRP Site 21 Proposed Plan was from July 13, 2001 to August 13, 2001. In addition, a public meeting and a public hearing were conducted on August 1, 2001 in Bedford, MA to discuss the OU-3/IRP Site 21 Proposed Plan.

Summary of Public Comments Received During Public Comment Period and Agency Responses

During the public hearing oral comments were solicited from the public. However, no oral comments were received during the public hearing. One written comment was received during the comment period and is presented below.

Support for the Selected Alternative

1. One of the RAB members wrote in the following:

   "I regret that a personal commitment prevented me from attending the hearing on OU-3/IRP Site 21 and the RAB meeting on August 1, 2001. However, I would like to be recorded as fully in favor of the Preferred Alternative for cleaning up OU-3/IRP Site 21. I think that the multiple components which are included will give the Air Force substantial flexibility in fine tuning the system to remediate the site within a reasonable time frame and at a reasonable cost."

Hanscom AFB Response: Hanscom AFB appreciates the positive feedback.

Remaining Concerns

Hanscom AFB is not aware of any concerns that were unable to be addressed during the public comment period.

Attachment A

Community Relations Activities

Community relations activities conducted for OU-3/IRP Site 21, Hanscom AFB:

- In the early 1980s, public briefings were periodically conducted during Hanscom Field Advisory Commission meetings regarding the Preliminary Assessment/Site Inspection phases of the CERCLA process.
- In the early 1980s, there was significant newspaper coverage of Hanscom AFB's Preliminary Assessment/Site Inspection/Remedial Action status.
- Technical Review Committee (TRC) meetings were conducted on June 1, 1993 and December 15, 1993.
- The TRC was expanded to become the Restoration Advisory Board (RAB) which has held meetings periodically since November 29, 1994. Updates on the Remedial Investigation, Feasibility Study, Proposed Plan and on-going Removal Action at IRP Site 21 have been routinely presented at RAB meetings since 1994 to date.
- On April 11, 1995, Hanscom AFB consultant, Kestrel Drilling and Remediation, made a presentation on a Proposed Removal Action at IRP Site 21 to the RAB.
- On May 5, 1995, Hanscom AFB published a notice and brief analysis of a Proposed Removal Action at Hanscom AFB in the local and Hanscom AFB newspapers and made the Engineering Evaluation/Cost Analysis (EE/CA) available to the public at the Bedford, Concord, Lexington and Lincoln Town Libraries and the Hanscom AFB Library.
- From May 8 to June 7, 1995, Hanscom AFB held a 30 day public comment period to accept public comment on the EE/CA.
- On June 15, 2001, copies of the Draft Proposed Plan were mailed to the RAB members.
- On July 10, 2001, copies of the Final Proposed Plan and information regarding the public comment period, public meeting, and public hearing were mailed to RAB members and the Chair of the Bedford Board of Health, and the Chief of the Bedford Public Works.
- On July 12, 2001, Hanscom AFB and USEPA published a notice and brief analysis of the Proposed Plan in the local and Hanscom AFB newspapers and made the plan and Final Feasibility Study available to the public at the Bedford Town Library and the Hanscom AFB Library. The notice included the time and date of the public meeting and hearing.
- From July 13 to August 13, 2001, Hanscom AFB and USEPA held a 30 day public comment period to accept public comment on the alternatives presented in the Feasibility Study and Proposed Plan.
- On August 1, 2001, Hanscom AFB and USEPA held an informational meeting at the Bedford Town Hall to discuss the results of the Remedial Investigation and the cleanup

alternatives presented in the Feasibility Study and to present the Air Force's Proposed Plan to a broader community audience than those that had already been involved at the site. At this meeting, representatives from USEPA and Hanscom AFB responded to questions from the public.

- On August 1, 2001, Hanscom AFB and USEPA held a public hearing at the Bedford Town Hall to discuss the Proposed Plan and to accept any oral comments. A transcript of this meeting and the comments and responses to comments are included in this Responsiveness Summary.
- Throughout the CERCLA process the administrative record has been available for public review at the Hanscom AFB Environmental Flight Office, Hanscom AFB. This is the primary information repository for local residents and is kept up to date by Hanscom AFB.

Attachment B

Public Hearing Transcript

INFORMATIONAL MEETING AND PUBLIC HEARING REMARKS

ORIGINAL

****

OPERABLE UNIT 3/INSTALLATION

RESTORATION PROGRAM SITE 21

HANSCOM AFB, MA

****

PLACE: Bedford Town Hall 10 Mudge Way
Bedford, MA (Auditorium)

DATE: Wednesday, August 1, 2001

TIME: 7:00 p.m.

HEARING OFFICER: Thomas Best

ALSO PRESENT: Donald Morris

Diane Cercone, Certified Court & Conference Reporter

PROCEEDINGS

(7:32 p.m.)

MR. BEST: We are now prepared for the hearing portion of the meeting. We are now starting the public hearing portion of the meeting and the official record is now open.

My name is Thomas Best, and I will be the hearing officer for tonight. The purpose of the hearing is to accept oral comments, testimony, and written comments on the Proposed Plan for the area on Hanscom Field identified as Operable Unit 3/Installation Restoration Program Site 21.

All comments and testimony that are given tonight will be transcribed verbatim and become part of the official record on this project. Each and every comment will be responded to in the Responsiveness Summary that will be issued after the close of the public comment period.

The Responsiveness Summary will be attached to the Record of Decision. The Record of Decision will contain the Air Force's selected alternative for Operable Unit 3/Installation Restoration Program Site 21 and the rationale for the selection.

This hearing is different than the informational meeting held earlier. It is exclusively for listening to, and recording your oral comments. We will not respond to your comments during the hearing unless you need clarification on something. We may ask you for clarification if we are not sure what your comment is.

Everyone wanting to comment will be given the opportunity to do so. Please speak up so everyone present can hear.

If you want a copy of the Responsiveness Summary mailed to you when it is issued, please state your name and mailing address. If you do not want a copy of the Responsiveness Summary, just state your name and town of residence.

The floor is now open to comment on the Proposed Plan for Hanscom Air Force Base's Operable Unit 3/Installatin Restoration Program Site 21.

(Pause)

MR. MORRIS: Tom, maybe we should state or ask if anyone here is from the public because we're seeing that we have Air Force people, EPA, DEP, consultants and RAB members and town

officials, so we should probably ask if there's anyone here from the public.

MR. BEST: Now, when I look around, the answer to that question is I don't see anyone from the public other than our RAB members.

(Pause)

MR. BEST: Are there any further comments to be offered on the Proposed Plan for Hanscom Air Force Base's Operable Unit 3/Installation Restoration Program Site 21?

(Pause)

MR. BEST: If there are no further comments to be made then I shall now close the official record for oral testimony. The record is now closed. Please note that you can still provide written comments through August 13th.

I thank you all for coming and have a good evening.

(End of hearing at 7:38 p.m.)

CERTIFICATE

I, Diane Cercone, a Professional Court Reporter and Notary Public in and for the Commonwealth of Massachusetts, do hereby certify that the foregoing hearing was taken before me on August 1, 2001.

The said hearing was taken audiographically by myself and then transcribed under my direction. To the best of my knowledge, the within hearing is a complete, true, and accurate record of said hearing.

I am not connected by blood or marriage with any of the said parties, nor interested directly or indirectly in the above matter.

In witness thereof, I have hereunto set my hand and Notary Seal this 6th day of August, 2001.

Diane Cercone

Diane Cercone, Notary Public

My commission expires:

April 1, 2005

Appendix C – Human Health Risk Tables

TABLE C-1
Summary of Chemicals of Concern and
Medium-Specific Exposure Point Concentrations

Scenario Timeframe: **Current**

Medium: **Groundwater**

Exposure Medium: **Groundwater**

Exposure Point	Chemical of Concern	Concentration Detected			Units	Exposure Point Concen-tration	Exposure Point Concen-tration Units	Statistical Measure
		Frequency of Detection	Min	Max				
Groundwater	Benzene	7/46	0.8	150	ppb	150	ppb	MAX
	Toluene	4/46	1.0	1800	ppb	1800	ppb	MAX
	Ethylbenzene	12/46	0.9	610	ppb	610	ppb	MAX
	Meta-Xylene and para-Xylene	11/46	0.5	2600	ppb	2600	ppb	MAX
	Ortho-xylene	7/46	4	900	ppb	900	ppb	MAX
	1,4-Dichlorobenzene	8/46	0.9	390	ppb	390	ppb	MAX
	1,2-Dichlorobenzene	9/46	0.8	1400	ppb	1400	ppb	MAX
	1,2,4-Trichlorobenzene	1/46	84	84	ppb	84	ppb	MAX
	Tetrachloroethene	2/46	0.8	5	ppb	5	ppb	MAX
	cis-1,2,-Dichloroethene	5/46	0.5	100	ppb	100	ppb	MAX
	Trichloroethene	6/46	0.6	6	ppb	6	ppb	MAX
	Vinyl Chloride	3/46	3.0	37	ppb	37	ppb	MAX
	1,2,-Dichloropropane	2/46	0.5	5	ppb	5	ppb	MAX
	Trans-1,3,-Dichloropropene	1/46	0.8	0.8	ppb	0.8	ppb	MAX
	Isopropylbenzene	14/46	0.6	68	ppb	68	ppb	MAX
	n-Propylbenzene	12/46	3.0	88	ppb	88	ppb	MAX
	1,3,5-Trimethylbenzene	10/46	2.0	160	ppb	160	ppb	MAX
	1,2,4-Trimethylbenzene	13/46	0.7	750	ppb	750	ppb	MAX
	sec-Butylbenzene	9/46	0.6	18	ppb	18	ppb	MAX
	Naphthalene	11/46	0.6	170	ppb	170	ppb	MAX

TABLE C-1 (*CONTINUED*)
Summary of Chemicals of Concern and
Medium-Specific Exposure Point Concentrations

Exposure Point	Chemical of Concern	Concentration Detected			Units	Exposure Point Concen-tration	Exposure Point Concen-tration Units	Statistical Measure
		Frequency of Detection	Min	Max				
Groundwater	2-methylnaphthalene	3/8	0.2	6.3	ppb	6.3	ppb	MAX
	Benzo(a) anthracene	2/8	0.2	0.2	ppb	0.2	ppb	MAX
	Benzo(b) fluoranthene	1/8	0.2	0.2	ppb	0.2	ppb	MAX
	Benzo(a) pyrene	1/8	0.1	0.1	ppb	0.1	ppb	MAX
	Indeno (1,2,3-cd) pyrene	1/8	0.1	0.1	ppb	0.1	ppb	MAX

Key

ppb : Parts per billion

MAX : maximum concentration

Notes:

The table presents the chemicals of concern (COCs) and exposure point concentration for each of the COCs detected in groundwater (*i.e.*, the concentration that will be used to estimate the exposure and risk from each COC in the groundwater). The table includes the range of concentrations detected for each COC, the exposure point concentration (EPC), and how the EPC was derived. The maximum concentration (MAX) was used as the exposure point concentration for all COCs.

TABLE C-2
Cancer Toxicity Data Summary

Pathway: Ingestion, Dermal

Chemical of Concern	Oral Cancer Slope Factor	Dermal Cancer Slope Factor	Slope Factor Units	Weight of Evidence/ Cancer Guideline Description	Source	Date
Benzene	0.029	0.029	(mg/kg)/day	—	—	—
1,4-Dichlorobenzene	0.024	0.024	(mg/kg)/day	—	—	—
Tetrachloroethene	0.052	0.052	(mg/kg)/day	—	—	—
Trichloroethene	0.011	0.011	(mg/kg)/day	—	—	—
Vinyl chloride	1.9	1.9	(mg/kg)/day	—	—	—
1,2-Dichloropropane	0.068	0.068	(mg/kg)/day	—	—	—
Trans-1,3-Dichloropropene	0.18	0.18	(mg/kg)/day	—	—	—
Benzo(a)anthracene	0.73	0.73	(mg/kg)/day	—	—	—
Benzo(b)fluoranthene	0.73	0.73	(mg/kg)/day	—	—	—
Benzo(a)pyrene	7.3	7.3	(mg/kg)/day	—	—	—
Indeno (1,2,3-cd) pyrene	0.73	0.73	(mg/kg)/day	—	—	—

Pathway: Inhalation

Chemical of Concern	Unit Risk	Units	Inhalation Cancer Slope Factor (CSFs)	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (MM/DD/ YYYY)
Benzene	—	—	0.027	(mg/kg)/day	—	—	—
1,4-Dichlorobenzene	—	—	0.022	(mg/kg)/day	—	—	—
Tetrachloroethene	—	—	0.002	(mg/kg)/day	—	—	—
Trichloroethene	—	—	0.006	(mg/kg)/day	—	—	—
Vinyl chloride	—	—	0.3	(mg/kg)/day	—	—	—
Trans-1,3-Dichloropropene	—	—	0.13	(mg/kg)/day	—	—	—
Benzo(a)anthracene	—	—	0.31	(mg/kg)/day	—	—	—
Benzo(b)fluoranthene	—	—	0.31	(mg/kg)/day	—	—	—
Benzo(a)pyrene	—	—	3.1	(mg/kg)/day	—	—	—
Indeno (1,2,3-cd) pyrene	—	—	0.31	(mg/kg)/day	—	—	—

TABLE D-2 (*CONTINUED*)
Cancer Toxicity Data Summary

Key

— : No information available

Notes:

All CSFs from EPA Integrated Risk Information System and Health Effects Assessment Summary Tables databases. If information was not available from these two sources, other EPA sources were consulted (e.g., EPA Region I risk assessors and EPA National Center for Environmental Assessment).

This table provides carcinogenic risk information which is relevant to the contaminants of concern in ground water. At this time, slope factors are not available for the dermal route of exposure. Thus, the dermal slope factors used in the assessment have been extrapolated from oral values. Oral CSFs were adjusted for dermal exposure only if an oral absorption efficiency value was available in current US EPA dermal assessment guidance. If an oral absorption efficiency value was not available, the oral CSFs were used to assess risks associated with dermal exposure.

TABLE C-3
Non-Cancer Toxicity Data Summary

Pathway: Ingestion, Dermal

Chemical of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Dermal RfD	Dermal RfD Units	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ
1,4-Dichlorobenzene	Chronic	0.03	mg/kg-day	0.03	mg/kg-day	—	—	—	—
	Subchronic	0.03	mg/kg-day	0.03	mg/kg-day	—	—	—	—
1,2-Dichlorobenzene	Chronic	0.09	mg/kg-day	0.09	mg/kg-day	—	—	—	—
	Subchronic	0.09	mg/kg-day	0.09	mg/kg-day	—	—	—	—
1,2,4-Trichlorobenzene	Chronic	0.01	mg/kg-day	0.01	mg/kg-day	—	—	—	—
	Subchronic	0.01	mg/kg-day	0.01	mg/kg-day	—	—	—	—
Cis-1,2-Dichloroethene	Chronic	0.01	mg/kg-day	0.01	mg/kg-day	—	—	—	—
	Subchronic	0.1	mg/kg-day	0.1	mg/kg-day	—	—	—	—
Trichloroethene	Chronic	0.006	mg/kg-day	0.006	mg/kg-day	—	—	—	—
	Subchronic	0.003	mg/kg-day	0.003	mg/kg-day	—	—	—	—
1,2-Dichloropropane	Chronic	0.0011	mg/kg-day	0.0011	mg/kg-day	—	—	—	—
	Subchronic	0.003	mg/kg-day	0.003	mg/kg-day	—	—	—	—
Trans-1,3-Dichloropropene	Chronic	0.0003	mg/kg-day	0.0003	mg/kg-day	—	—	—	—
	Subchronic	0.003	mg/kg-day	0.003	mg/kg-day	—	—	—	—
Tetrachloroethene	Chronic	0.01	mg/kg-day	0.01	mg/kg-day	—	—	—	—
	Subchronic	0.1	mg/kg-day	0.1	mg/kg-day	—	—	—	—

TABLE C-3 (*CONTINUED*)
Non-Cancer Toxicity Data Summary

Pathway: Ingestion, Dermal

Chemical of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Dermal RfD	Dermal RfD Units	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ
Benzene	Chronic	0.003	mg/kg-day	0.003	mg/kg-day	—	—	—	—
	Subchronic	0.003	mg/kg-day	0.003	mg/kg-day	—	—	—	—
Toluene	Chronic	0.2	mg/kg-day	0.2	mg/kg-day	—	—	—	—
	Subchronic	2.0	mg/kg-day	2.0	mg/kg-day	—	—	—	—
Ethylbenzene	Chronic	0.1	mg/kg-day	0.1	mg/kg-day	—	—	—	—
	Subchronic	0.1	mg/kg-day	0.1	mg/kg-day	—	—	—	—
Meta-xylene and para-xylene	Chronic	2.0	mg/kg-day	2.0	mg/kg-day	—	—	—	—
	Subchronic	2.0	mg/kg-day	2.0	mg/kg-day	—	—	—	—
Ortho-xylene	Chronic	2.0	mg/kg-day	2.0	mg/kg-day	—	—	—	—
	Subchronic	2.0	mg/kg-day	2.0	mg/kg-day	—	—	—	—
Isopropylbenzene	Chronic	0.1	mg/kg-day	0.1	mg/kg-day	—	—	—	—
	Subchronic	0.1	mg/kg-day	0.1	mg/kg-day	—	—	—	—
n-Propylbenzene	Chronic	0.01	mg/kg-day	0.01	mg/kg-day	—	—	—	—
	Subchronic	0.01	mg/kg-day	0.01	mg/kg-day	—	—	—	—
1,3,5-Trimethylbenzene	Chronic	0.05	mg/kg-day	0.05	mg/kg-day	—	—	—	—
	Subchronic	0.05	mg/kg-day	0.05	mg/kg-day	—	—	—	—

TABLE C-3 (*CONTINUED*)
Non-Cancer Toxicity Data Summary

Pathway: Ingestion, Dermal

Chemical of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Dermal RfD	Dermal RfD Units	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ
1,2,4-Trimethylbenzene	Chronic	0.05	mg/kg-day	0.05	mg/kg-day	—	—	—	—
	Subchronic	0.05	mg/kg-day	0.05	mg/kg-day	—	—	—	—
Sec-Butylbenzene	Chronic	0.01	mg/kg-day	0.01	mg/kg-day	—	—	—	—
	Subchronic	0.01	mg/kg-day	0.01	mg/kg-day	—	—	—	—
Naphthalene	Chronic	0.02	mg/kg-day	0.02	mg/kg-day	—	—	—	—
	Subchronic	0.02	mg/kg-day	0.02	mg/kg-day	—	—	—	—
2-Methylnaphthalene[1]	Chronic	0.02	mg/kg-day	0.02	mg/kg-day	—	—	—	—
	Subchronic	0.02	mg/kg-day	0.02	mg/kg-day	—	—	—	—

Pathway: Inhalation

1,4-Dichlorobenzene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.229	mg/kg-day	—	—	—	—
1,2-Dichlorobenzene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.571	mg/kg-day	—	—	—	—
1,2,4-Trichlorobenzene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.571	mg/kg-day	—	—	—	—

TABLE C-3 (*CONTINUED*)
Non-Cancer Toxicity Data Summary

Pathway: Inhalation

Chemical of Concern	Chronic/ Subchronic	Inhala-tion RfC	Inhalation RfC Units	Inhalation RfD	Inhalation RfD Units	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfC:RfD: Target Organ	Dates
Trichloroethene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.114	mg/kg-day	—	—	—	—
1,2-Dichloropropane	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.0037	mg/kg-day	—	—	—	—
Trans-1,3-Dichloropropene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.0057	mg/kg-day	—	—	—	—
Tetrachloroethene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.11	mg/kg-day	—	—	—	—
Benzene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.017	mg/kg-day	—	—	—	—
Toluene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.114	mg/kg-day	—	—	—	—
Ethylbenzene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.29	mg/kg-day	—	—	—	—
Isopropylbenzene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.11	mg/kg-day	—	—	—	—

TABLE C-3 (*CONTINUED*)
Non-Cancer Toxicity Data Summary

Pathway: Inhalation

Chemical of Concern	Chronic/ Subchronic	Inhala-tion RfC	Inhalation RfC Units	Inhalation RfD	Inhalation RfD Units	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfC:RfD: Target Organ	Dates
1,3,5-Trimethylbenzene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.0017	mg/kg-day	—	—	—	—
1,2,4-Trimethylbenzene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.0017	mg/kg-day	—	—	—	—
Naphthalene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.0009	mg/kg-day	—	—	—	—
2-Methylnaphthalene	Chronic	—	—	NA	mg/kg-day	—	—	—	—
	Subchronic	—	—	0.0009	mg/kg-day	—	—	—	—

Key
— : No information available
NA – Not applicable

Notes:

All RfDs from EPA Integrated Risk Information System and Health Effects Assessment Summary Tables databases. If information was not available from these two sources, other EPA sources were consulted (e.g., EPA Region I risk assessors and EPA National Center for Environmental Assessment).

This table provides non-carcinogenic risk information which is relevant to the contaminants of concern in both soil and ground water. As was the case for the carcinogenic data, dermal RfDs were extrapolated from the oral RfDs applying an adjustment factor as appropriate.

Appendix D – Ecological Risk Tables

TABLE D-1
Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPC)

Exposure Medium: Sediment of Shawsheen River

Compound	Minimum Conc. (µg/kg)	Maximum Conc. (µg/kg)	Mean Conc. (µg/kg)	Background Conc. (µg/kg)	Screening Toxicity Value (µg/kg)	Screening Toxicity Value Source	HQ Value	COPC Flag Y or N
Toluene	0.00	5.0	1.6	ND	1273	A [1]	0.004	N
bis(2-Ethylhexyl) phthalate	60	810	339	180	182	D	4.45	Y
Carbazole	31.5	540	198	ND	NA	NA	No Threshold	NA
Dibenzofuran	28	200	73	ND	3800	A [1]	0.05	N
4,4'-DDD	8.7	290	85.18	15	2.00	B	145	Y
4,4'-DDE	2.3	36.0	12.28	5.1	2.20	B	16.4	Y
4,4'-DDT	3.1	10.0	7.80	9.0	1.58	B	6.33	Y
Aldrin	0.78	2.60	1.33	2.6	2.00	C	1.30	Y
alpha-Chlordane	3.5	9.40	6.83	ND	2.26	D	4.16	Y
Aroclor 1260	3.3	730	185	ND	5.00	C	146	Y
Endosulfan I	2.5	10.0	6.90	ND	5.51	A [1]	1.81	Y
Endosulfan sulfate	0.33	7.4	3.73	4.3	5.40	A	1.37	Y
Endrin	1.0	5.7	2.26	ND	20.0	A	0.29	N
Endrin aldehyde	1.3	41.0	12.10	1.4	20.0	A [2]	2.05	Y
Endrin ketone	1.4	38.0	11.75	ND	20.0	A [2]	1.90	Y
gamma-Chlordane	2.6	11.0	6.73	ND	2.26	D	4.87	Y

TABLE D-1 (*CONTINUED*)
Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPC)

Exposure Medium: Sediment of Shawsheen River

Compound	Minimum Conc. (µg/kg)	Maximum Conc. (µg/kg)	Mean Conc. (µg/kg)	Background Conc. (µg/kg)	Screening Toxicity Value (µg/kg)	Screening Toxicity Value Source	HQ Value	COPC Flag Y or N
Heptachlor epoxide	0.13	39.0	11.33	ND	5.00	C	7.80	Y
Acenaphthene	570	8000	2933	2800	1178	A [1]	6.79	Y
Acenaphthylene	23	290	137	190	44	B	6.59	Y
Anthracene	49	760	277	300	85	B	8.94	Y
Benzo[g,h,i]perylene	130	640	385	630	290	E	2.21	Y
Benz[a]anthracene	130	1100	490	370	261	B	4.21	Y
Chrysene	300	2200	953	620	384	B	5.73	Y
Dibenz[a,h]anthracene	20	180	76	84	63.4	B	2.84	Y
Fluoranthene	540	3300	1525	2100	5510	A [1]	0.60	N
Fluorene	25	590	200	150	1026	A [1]	0.58	N
Indeno[1,2,3-cd]pyrene	89	790	332	91	78	E	10.1	Y
Naphthalene	11	80	30	ND	912	A [1]	0.09	N
Phenanthrene	300	1000	555	690	1615	A [1]	0.62	N
Pyrene	370	870	563	660	665	B	1.31	Y
TPH, diesel range	36	360	177	NA	NA	NA	No Threshold	NA
TPH, gasoline range	15	110	64	ND	NA	NA	No Threshold	NA

TABLE D-1 (*CONTINUED*)
Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPC)

Exposure Medium: Sediment of Shawsheen River

Compound	Minimum Conc. (µg/kg)	Maximum Conc. (µg/kg)	Mean Conc. (µg/kg)	Background Conc. (µg/kg)	Screening Toxicity Value (µg/kg)	Screening Toxicity Value Source	HQ Value	COPC Flag Y or N
Aluminum	2570	6110	4580	2300	58030	E [3]	0.11	N
Antimony	0.12	0.72	0.43	0.41	2.0	B	0.36	N
Arsenic	6.4	19.30	11.60	9.80	8.2	B	2.35	Y
Barium	10.4	33.10	20.63	8.90	NA	NA	No Threshold	NA
Beryllium	0.06	0.55	0.31	0.10	NA	NA	No Threshold	NA
Cadmium	0.06	0.71	0.32	0.13	4.2	A	0.17	N
Calcium	502	1050	839	440	*	*	No Threshold	NA
Chromium	13	33	25	15.80	81.0	B	0.41	N
Cobalt	0.34	2.4	1.2	0.52	NA	NA	No Threshold	NA
Copper	3.2	18.0	8.0	3.5	34.0	B	0.53	N
Iron	1180	9160	5820	5510	20000	C	0.46	N
Lead	12.2	56	28	13.6	46.7	B	1.21	Y
Magnesium	1190	1970	1473	961	*	*	No Threshold	NA
Nickel	3.8	7.50	5.67	2.9	20.9	B	0.36	N
Potassium	502	1010	677	344	*	*	No Threshold	NA
Selenium	0.12	0.59	0.32	0.34	NA	NA	No Threshold	NA
Sodium	132	134	133	108	*	*	No Threshold	NA

TABLE D-1 (*CONTINUED*)
Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPC)

Exposure Medium: Sediment of Shawsheen River

Compound	Minimum Conc. (µg/kg)	Maximum Conc. (µg/kg)	Mean Conc. (µg/kg)	Background Conc. (µg/kg)	Screening Toxicity Value (µg/kg)	Screening Toxicity Value Source	HQ Value	COPC Flag Y or N
Thallium	0.06	3.3	0.9	ND	NA	NA	No Threshold	NA
Vanadium	6.9	17.8	10.6	5.4	NA	NA	No Threshold	NA
Zinc	31.8	84	50	30.9	150	B	0.56	N

Key

Conc. = Concentration

NA = Not Available

ND = Not Detected

A = EcoTox Thresholds (USEPA, 1996)

B = Effects Range Low, NOAA (Long and Morgan, 1991)

C = Lowest Effect Level, Ontario Ministry of the Environment (Persuad *et al.*, 1993)

D = Threshold Effect Level, Florida DEP (MacDonald, 1994)

E = Threshold Effect Concentration, National Biological Service- ACRS program (USEPA, 1996)

Note:

Background sample: SDR6-05

Half of the detection limit was used to calculate mean values when samples were not detected

* = Essential Nutrient (No threshold)

[1]= Adjusted for 1.9% site-specific TOC

[2]= Value for endrin used as a surrogate

[3]= Probable Effect Concentration (USEPA, 1996b)

TABLE D-2
Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COC)

Exposure Medium: Surface Water of Shawsheen River

Compound	Minimum Conc. (ppb)	Maximum Conc. (ppb)	Mean Conc. (ppb)	Background Conc. (ppb)	Screening Toxicity Value (ppb)	Screening Toxicity Value Source	HQ Value	COPC Flag Y or N
1,2-Dichlorobenzene	0.10	0.40	0.18	ND	763	B	0.0005	N
cis-1,2-Dichloroethene	0.50	0.80	0.63	0.70	11600	B	0.0001	N
Trichloroethene	0.10	0.90	0.60	0.80	21900	B	0.00004	N
Aldrin	0.00	0.03	0.01	ND	0.3	B	0.09	N
Benzo(b)fluoranthene	0.01	0.02	0.01	0.02	NA	NA	NA	No threshold
Fluoranthene	0.01	0.04	0.02	0.03	6.2	B	0.006	N
Phenanthrene	0.01	0.02	0.01	0.02	6.3	B	0.003	N
TPH, diesel range	23.00	150	55	46	NA	NA	NA	No threshold
Aluminum	63.50	117	99	102	87	B[1]	1.34	Y
Arsenic	1.00	2.80	1.45	ND	190	B	0.01	N
Barium	11.00	27.2	21.80	ND	3.9	A	6.97	Y
Calcium	21600	24800	23050	19700	*	*	NA	No threshold
Iron	736	1330	1027	771	1000	B	1.33	Y
Magnesium	3920	4380	4150	3560	*	*	NA	No threshold
Manganese	316	389	364	299	80	A	4.86	Y
Potassium	3610	4070	3790	3590	*	*	NA	No threshold
Sodium	51800	54800	53275	51100	*	*	NA	No threshold
Zinc	6	30.3	12	ND	46.2	B[2]	0.66	N

TABLE D-2 (*CONTINUED*)
Occurrence, Distribution, and Selection of Chemicals of Potential Concern (COPC)

Exposure Medium: Surface Water of Shawsheen River

Key

Conc. = Concentration

NA = Not Available

A = EcoTox Thresholds (USEPA, 1996)

B = National Ambient Water Quality Criteria (USEPA, 1998)

C = Tier II secondary chronic value (Suter and Tsao, 1996)

Note:

Background sample: SDR6-05

Half of the detection limit was used to calculate mean values when samples were not detected

* = Essential Nutrient (No threshold)

[1]= Value based on total recoverable; toxicity at pH 6.5-6.6 and hardness <10 mg/L (toxicity is generally much less at higher pH and hardness.)

2= Value is adjusted for site-specifc average hardness of 32.5 mg/L

TABLE D-3
COC Concentrations Expected to Provide Adequate Protection of Ecological Receptors

Habitat Type/ Name	Exposure Medium	COC	Protective Level	Units	Source	Assessment Endpoint
Shawsheen River	Sediment	bis(2-Ethylhexyl) phthalate	182	ug/kg	D	Benthic invertebrate community species diversity and abundance
		Carazole	NA	ug/kg	NA	
		Benzo(a)anthracene	261	ug/kg	B	
		Chrysene	384	ug/kg	B	
		Pyrene	665	ug/kg	B	
		TPH, diesel range	NA	ug/kg	NA	
		TPH, gasoline range	NA	ug/kg	NA	
Shawsheen River	Surface Water	Benzo(b)fluoranthene	NA	ug/l	NA	Maintenance of a balanced, indigenous aquatic invertebrate community
		TPH, diesel range	NA	ug/l	NA	

Note:

NA = Not Available

A = EcoTox Thresholds (USEPA, 1996)

B = Effects Range Low, NOAA (Long and Morgan, 1991)

C = Lowest Effect Level, Ontario Ministry of the Environment (Persaud et al., 1993)

D = Threshold Effect Level, Florida DEP (MacDonald 1994)

E = Threshold Effect Concentration, National Biological Service-ARCS program (USEPA, 1996b)

Appendix E – Cost Table for Selected Remedy

HANSCOM AIR FORCE BASE - OU-3/ IRP SITE 21
COST ESTIMATE FOR THE SELECTED REMEDY
Interceptor Trenches with Passive Recovery Wells near Northern Boundary and at 2 Hotspot Areas within LNAPL Pool C; ORC Application in Trenches; Enhanced Recovery Wells at Non-hotspot Areas of LNAPL Pool C; Monitoring and LUCs/ICs; and Groundwater Containment/Treatment and VER Contingencies

Date: **17-Jul-2001**

ITEM DESCRIPTION	UNITS	QUANTITY	UNIT COST ($) LOW	UNIT COST ($) HIGH	TOTAL COST ($) LOW	TOTAL COST ($) HIGH
Petroleum-saturated Soil Removal/ Trench Installation						
1.0 MOBILIZATION/DEMOBILIZATION	LS	1	20000	25000	20,000	25,000
2.0 LEGAL	LS	1	10,000	15,000	10,000	15,000
3.0 SITE SECURITY						
3.1 Temporary Security Fence	LF	300	20	22	6,000	6,600
4.0 SITE PREPARATION						
4.1 Construct Soil Dewatering Pad	LS	1	20,000	30,000	20,000	30,000
5.0 TRENCH EXCAVATION/DEWATERING						
5.1 Excavate Trench	CY	5,410	30	35	162,300	189,350
5.2 ORC Application in Trench (includes downgradient monitoring)	LS	1	9,500	12,000	9,500	12,000
5.3 Drying Saturated/Contaminated Soils/Dewatering on Pad	CY	1,020	6	10	6,120	10,200
5.4 Bulking and Loading	CY	1,020	10	15	10,200	15,300
6.0 TRANSPORTATION AND DISPOSAL						
6.1 T&D to an Asphalt Batching Facility	CY	1,020	113	150	114,750	153,000
7.0 BACKFILL/RESTORATION						
7.1 Import, Place Gravel Backfill Beneath Water Table	CY	1340	35	40	46,900	53,600
7.2 Install Geotextile Over Gravel	sf	5170	1	1.25	5,170	6,463
7.3 Replace 10' Native Soil Above Water Table	CY	4070	10	15	40,700	61,050
7.4 Re-pave	SY	970	9	11.5	8,730	11,155
Groundwater Containment/Passive Product Recovery System						
8.0 MOBILIZATION/DEMOBILIZATION	LS	1	5000	10000	5,000	10,000
9.0 SYSTEM INSTALLATION						
9.1 Installation 4" Product Recovery Wells in Trench	well	4	2,000	2,500	8,000	10,000
9.2 Product Removal Systems (product-only pumps, belt skimmer, or manually emptied device)	system	4	500	12,500	2,000	50,000
9.3 Provisions for Contingency Use of Trench for Groundwater Containment (product recovery wells designed/installed for contingency use)	LS	1	5,000	10,000	5,000	10,000
LNAPL Removal Technology at LNAPL Pool C						
10.0 "HOT SPOT" TRENCH EXCAVATION/DEWATERING						
10.1 Excavate Trenches - "Hot Spot" Areas	CY	830	30	35	24,900	29,050
10.2 ORC Application in Trenches (includes downgradient monitoring)	LS	1	2,500	3,700	2,500	3,700
10.3 Drying Saturated/Contaminated Soils/Dewatering on Pad	CY	250	6	10	1,500	2,500
10.4 Bulking and Loading	CY	250	10	15	2,500	3,750
11.0 TRANSPORTATION AND DISPOSAL						
11.1 T&D to an Asphalt Batching Facility	CY	250	113	150	28,125	37,500
12.0 BACKFILL/RESTORATION						
12.1 Import, Place Gravel Backfill Beneath Water Table	CY	380	35	40	13,300	15,200
12.2 Install Geotextile Over Gravel	sf	1130	1	1.25	1,130	1,413
12.3 Replace 10' Native Soil Above Water Table	CY	450	10	15	4,500	6,750
12.4 Re-pave	SY	300	9	11.5	2,700	3,450
12.5 Seeding/Mulching, surrounding area	acre	0.1	2000	3000	200	300
13.0 ENHANCED PRODUCT RECOVERY IN LNAPL POOL C						
13.1 Installation 4" Product/Groundwater Recovery Wells	well	10	2,000	2,500	20,000	25,000
13.2 Installation of Pumps and Controllers	well	10	600	800	6,000	8,000
13.3 Installation of Piping/System Setup (electrical)	LS	1	3,000	4,000	3,000	4,000
14.0 SITE MANAGEMENT	months	3	20,000	25,000	60,000	75,000
Subtotal - Direct Construction Total (DCT)					$ 650,725	$ 884,330
Contractor's Indirect Costs (10% of DCT)					$ 65,073	$ 88,433
Design, EPA Deliverables and Resident Engineering					$ 100,000	$ 175,000
Subtotal - Total Capital Cost (TCC)					$ 815,798	$ 1,147,763
Contingency (25% of TCC)					$ 203,949	$ 286,941
TOTAL CAPITAL COST					$ 1,019,747	$ 1,434,704
PRESENT WORTH O&M COST(from below)					$ 553,220	$ 553,220
TOTAL PRESENT WORTH PROJECT COST					$ 1,572,967	$ 1,987,924

Operation, Maintenance, and Monitoring Costs

ITEM DESCRIPTION (Annual Activities)	UNITS	QUANTITY	UNIT COST ($)			TOTAL COST ($)
15.0 RECOVERY WELL NETWORK MAINTENANCE (includes product disposal)	LS	1	20,000			20,000
16.0 GROUNDWATER MONITORING	LS	1	8,000			8,000
						0
Total Annual Cost						$ 28,000
Contingency (10%)						$ 2,800
Subtotal						$ 30,800
Present Worth Annual O&M (35-yrs, i=5%)						$ 504,325

5 Year Site Reviews

ITEM DESCRIPTION (Annual Activities)	UNITS	QUANTITY	UNIT COST ($)			TOTAL COST ($)
17.0 5 Year Site Reviews	LS	1	15,000			15,000
Total 5-year Cost						$ 15,000
Contingency (10%)						$ 1,500
Subtotal						$ 16,500
Present value of series of 7 intervals of 5 years(35yrs, i=5%)						$ 48,895
Total Present Worth O&M						$ 48,895

Note: Costs are not included for establishing and maintaining LUCs/ICs at the site. All LUCs/ICs will be managed and supported by Air Force personnel as part of their normal assigned duties.

Appendix F – ARARs Tables

APPENDIX F Table F-2
Hanscom AFB OU-3/IRP Site 21
Alternative 12 ARARs

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Chemical Specific ARARs				
Groundwater	***Federal***			
	Federal Safe Drinking Water Act Maximum Contaminant Levels (MCLs) (40 CFR 141.11-141.16)	MCLs are enforceable standards that regulate the concentration of specific organic and inorganic contaminants that have been determined to adversely affect human health in public drinking water supplies. They also may be considered relevant and appropriate for groundwater aquifers potentially used for drinking water. Primary threat COCs in groundwater are VOCs.	Alternative 12 includes excavation of petroleum-saturated soil from LNAPL Pools A and B and "hot spots" in LNAPL Pool C and decreases in the dissolved concentrations of both the LNAPL associated contaminants and the chlorinated VOCs through natural attenuation. Following removal of the contaminant source ORC will be added to the excavation for an initial treatment of groundwater. Following the initial ORC treatment the dissolved-phase contaminant concentrations will continue to decrease through natural attenuation. Alternative 12 also includes contingencies for pumping and/or treating the groundwater in order to contain migration and/or reduce dissolved-phase concentrations. This alternative includes annual groundwater monitoring in order to track decreases in LNAPL volume and dissolved-phase contaminant concentrations over time. MCLs are listed in Table 2-15 for compounds of concern at OU-3/ IRP Site 21.	Relevant and Appropriate
	Federal Safe Drinking Water Act Maximum Contaminant Level Goals (MCLGs) (40 CFR 141.50-141.51)	Non-zero MCLGs are nonenforceable health goals for public water systems. MCLGs are set at levels that would result in no known or expected adverse health effects with an adequate margin of safety. Non-zero MCLGs are to be used as goals when MCLs have not been established for a particular compound of concern.	Alternative 12 includes excavation of petroleum-saturated soil from LNAPL Pools A and B and "hot spots" in LNAPL Pool C and decreases in the dissolved concentrations of both the LNAPL associated contaminants and the chlorinated VOCs through natural attenuation. Following removal of the contaminant source ORC will be added to the excavation for an initial treatment of groundwater. Following the initial ORC treatment the dissolved-phase contaminant concentrations will continue to decrease through natural attenuation. Alternative 12 also includes contingencies for pumping and/or treating the groundwater in order to contain migration and/or reduce dissolved-phase concentrations. This alternative includes annual groundwater monitoring in order to track decreases in LNAPL volume and dissolved-phase contaminant concentrations over time.	Relevant and Appropriate
	State			
	Massachusetts Drinking Water Standards (310 CMR 22.00)	These standards establish State MCLs for organic and inorganic contaminants that have been determined to adversely affect human health in public drinking water systems. They are to be used where they are more stringent than Federal MCLs.	Alternative 12 includes excavation of petroleum-saturated soil from LNAPL Pools A and B and "hot spots" in LNAPL Pool C and decreases in the dissolved concentrations of both the LNAPL associated contaminants and the chlorinated VOCs through natural attenuation. Following removal of the contaminant source ORC will be added to the excavation for an initial treatment of groundwater. Following the initial ORC treatment the dissolved-phase contaminant concentrations will continue to decrease through natural attenuation. Alternative 12 also includes contingencies for pumping and/or treating the groundwater in order to contain migration and/or reduce dissolved-phase concentrations. This alternative includes annual groundwater monitoring in order to track decreases in LNAPL volume and dissolved-phase contaminant concentrations over time.	Relevant and Appropriate
	Massachusetts Contingency Plan Method 1 GW-1 Standards (310 CMR 40.0974)	These are promulgated standards for characterizing the risk posed by COCs in groundwater under MCP. The MCP Method 1 GW-1 standards will only apply for compounds where the state standard is more restrictive than the federal MCL or MCLG, or for which no MCL or MCLG currently exists. Primary threat COCs in groundwater are VOCs.	Alternative 12 includes excavation of petroleum-saturated soil from LNAPL Pools A and B and "hot spots" in LNAPL Pool C and decreases in the dissolved concentrations of both the LNAPL associated contaminants and the chlorinated VOCs through natural attenuation. Following removal of the contaminant source ORC will be added to the excavation for an initial treatment of groundwater. Following the initial ORC treatment the dissolved-phase contaminant concentrations will continue to decrease through natural attenuation. Alternative 12 also includes contingencies for pumping and/or treating the groundwater in order to contain migration and/or reduce dissolved-phase concentrations. This alternative includes annual groundwater monitoring in order to track decreases in LNAPL volume and dissolved-phase contaminant concentrations over time. MCP Method 1 GW-1, GW-2 and GW-3 standards are listed in Table 2-15 for compounds of concern at OU-3/ IRP Site 21.	Relevant and Appropriate
Location Specific ARARs				
Surface water and wetlands	***Federal***			
	Fish and Wildlife Coordination Act (16 USC 661 et seq.)	This act requires consultation with the Fish and Wildlife Service and the state wildlife resource agency if alteration of a body of water, including discharge of pollutants into a wetland, will occur as a result of off-site remedial activities. Consultation is strongly recommended for on-site actions. This provides protection for actions that would affect streams, wetlands, other water bodies or protected habitats. Any action taken should protect fish or wildlife, and include measures developed to prevent, mitigate, or compensate for project-related losses to fish and wildlife.	According to the Comprehensive Ecological Analysis (LEC, August 1997), the Shawsheen River and it's banks are part of the Wetland Z System, however, Alternative 12 does not alter the river or discharge pollutants into a wetland. Since Alternative 12 includes excavating a trench approximately 120 to 200 feet south of the Shawsheen River and the discharge of treated groundwater into the base storm drainage system which discharges into the river, precautions will be taken to ensure that this alternative does not alter the river or discharge pollutants into a wetland. These include the installation of hay bales and/or silt fencing between the site and the river to ensure that surface runoff from the open excavation area does not transport silt into the the river and/or wetland. Also the the effluent from the groundwater treatment system will be sampled and analyzed to ensure compliance with regulatory discharge parameters.	Applicable
Other Natural Resources	***Federal***			
	Protection of Floodplains, Executive Order 11988 (40 CFR 6, Appendix A)	Appendix A of 40 CFR 6 sets forth policy for carrying out provisions of the Protection of Floodplains Executive Order. Under this order, federal agencies are required to avoid adverse effects, minimize potential harm, and restore and preserve natural and beneficial values of the floodplain.	According to the Comprehensive Ecological Analysis (LEC, August 1997), the Shawsheen River and it's banks (Zone 5) are located within a 100-year floodplain, however, Alternative 12 does not include any activities within the 100-year floodplain. Also the floodplain storage capacity and hydraulics will not be changed by this alternative. Since Alternative 12 includes excavating a trench approximately 120 to 200 feet south of the Shawsheen River, precautions will be taken to ensure that this alternative has no effect on the natural and beneficial values of the floodplain. These include the installation of hay bales and/or silt fencing between the site and the 100-year floodplain to ensure that surface runoff from the open excavation area does not transport silt into the floodplain.	Applicable

APPENDIX F Table F-2
Hanscom AFB OU-3/IRP Site 21
Alternative 12 ARARs

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Other Natural Resources	***State***			
	Massachusetts Endangered Species Act, 321 CMR 10.00, (MGL c. 131A)	The Commonwealth of Massachusetts has authority to research, list, and protect any species deemed endangered, threatened, or of other special concern. These species are listed as either endangered, threatened, or species of special concern in the regulations. Actions must be conducted in a manner that minimizes the effect on Massachusetts-listed endangered species and species listed by the Massachusetts Natural Heritage Program.	According to the Comprehensive Ecological Analysis (LEC, August 1997), the spotted turtle (a species of Special Concern, as listed by Massachusetts), has been observed in the Wetland Z System, however, Alternative 12 does not include any activities within the wetland. Since Alternative 12 includes excavating a trench approximately 120 to 200 feet south of the Shawsheen River and long-term monitoring of groundwater including some wells adjacent to the river, precautions will be taken to minimize the potential effect on endangered species. These include the briefing of site workers that if the spotted turtle is observed in the area of site work then actions (stop work or relocate turtle out of danger) are to be taken to preclude threatening or endangering the turtle. The requirement for this briefing will be included in the construction work plan and operation, maintenance, and monitoring plan.	Applicable
Action Specific ARARs				
Surface water	***Federal***			
	Clean Water Act National Pollutant Discharge Elimination System (NPDES) Regulations (40 CFR 122-125 and 131)	These regulations establish discharge limitations, monitoring requirements and best management practices for any direct discharge from a point source into surface water.	Alternative 12 includes recovery, treatment, and discharge of groundwater to the base storm drainage system which has outfalls in the Shawsheen River. The effluent from the groundwater treatment system will be sampled and analyzed to ensure compliance with regulatory discharge parameters.	Relevant and Appropriate
	Federal Ambient Water Quality Criteria (AWQC), 33 U.S.C 1314(a); (40 CFR Part 122.44)	Federal AWQC include (1) criteria for protection of human health from toxic properties of contaminants ingested through drinking water and aquatic organisms, and (2) criteria for protection of aquatic life.	Contaminant concentrations in monitoring wells adjacent to the Shawsheen River will continue to be monitored to determine whether river water quality is being impacted by contaminated groundwater, and to assure that AWQC are being met.	Relevant and Appropriate
	State			
	Clean Waters Act - Surface Water Discharge Permit Program (314 CMR 3.00; MGL c. 21 Sections 26-53)	This act and program establish the requirements intended to maintain the quality of surface waters by controlling the direct discharge of pollutants to surface waters. Direct discharges of wastewater to surface waters must meet effluent discharge limits established by this program.	Alternative 12 includes recovery, treatment, and discharge of groundwater to the base storm drainage system which has outfalls in the Shawsheen River. The effluent from the groundwater treatment system will be sampled and analyzed to ensure compliance with regulatory discharge parameters.	Relevant and Appropriate
	Massachusetts Surface Water Quality Standards (314 CMR 4.05(3)(b)5-8; MGL c.21 Sections 26-53)	These regulations limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. Discharges may be limited or prohibited to protect existing uses and not interfere with the attainment of designated uses in downstream and adjacent segments. This may pertain to both discharges to surface water as a result of remediation and any onsite surface waters affected by site conditions.	Contaminant concentrations in monitoring wells adjacent to the Shawsheen River will continue to be monitored to determine whether river water quality is being impacted by contaminated groundwater, and to assure that MA standards are being met.	Relevant and Appropriate
Groundwater	***Federal***			
	RCRA 40 CFR Part 264, Subpart F-Releases from Solid Waste Management Units (40 CFR 264.90-264.101 and 265.90-265.94)	General facilities requirements for groundwater monitoring at affected facilities and general requirements for corrective action programs, if required, at the affected facilities.	Groundwater monitoring will be conducted in accordance with these requirements.	Relevant and Appropriate
	Federal Safe Drinking Water Act Underground Injection Control Program (UIC) Subparts C,D and E (40 CFR 144.21-144.55)	These regulations require acquiring a permit in order to inject wastes, chemicals or other substances into the subsurface.	Alternative 12 includes injection of ORC into the groundwater. To ensure that the ORC injection complies with the substantive requirements of these regulations the proposed quantities to be injected will be included in the design and submiited to EPA and MA DEP for comment and concurrence and the groundwater monitoring program will assess the impact of the ORC. Also the contigency for groudnwater recovery from the trenches receiving the ORC can be implemented to remove the ORC if determined to be necessary.	Relevant and Appropriate
	State			
	MA HWMR Groundwater Protection (310 CMR 30.660-30.679)	These regulations require groundwater monitoring at specified regulated units that treat, store or dipose of hazardous waste. Maximum concentration limits for the hazardous constituents are specified in 310 CMR 30.668.	Groundwater monitoring will be conducted in accordance with these requirements.	Relevant and Appropriate
	Massachusetts Groundwater Discharge Permit Program (314 CMR 5.00; MGL c.21 Sections 26-53)	This program is designed to protect state groundwaters for their highest potential use by regulating discharges of pollutants to state groundwater and requiring the MADEP to regulate the outlets for groundwater discharges and associated treatment works. These regulations set effluent limits for the discharge of pollutants to groundwater. Recharge wells used exclusively to replenish an aquifer with uncontaminated water are exempt from this requirement. Uncontaminated water is water which upon discharge could not cause a violation of applicable water quality standards.	Alternation 12 does not include any discharge to groundwater. However, Alternative 12 does includes injection of ORC into the groundwater. To ensure that the ORC injection complies with the substantive requirements of these regulations the proposed quantities to be injected will be included in the design and submiited to EPA and MA DEP for comment and concurrence and the groundwater monitoring program will assess the impact of the ORC. Also the contigency for groudwater recovery from the trenches receiving the ORC can be implemented to remove the ORC if determined to be necessary.	Relevant and Appropriate
	MA Application of Remedial Additives (310 CMR 40.0046)	These regulations consist of requirements for the application of remedial additives to the subsurface.	Alternative 12 includes injection of ORC into the groundwater. To ensure that the ORC injection complies with the substantive requirements of these regulations the proposed quantities to be injected will be included in the design and submitted to EPA and MA DEP for comment and concurrence and the groundwater monitoring program will assess the impact of the ORC. Also the contingency for groundwater recovery from the trenches receiving the ORC can be implemented to remove the ORC if determined to be necessary.	Relevant and Appropriate
	MA Standards for Analytical Data for Remedial Response Action, Bureau of Waste Site Cleanup Policy 300-89.	This policy decribes the minimum standards for analytical data submitted to the MADEP.	All sampling plans will be designed with consideration of the analytical methods provided in this policy.	To Be Considered
	MA Underground Injection Control (UIC) Program (310 CMR 23.01-23.11)	These regulations require acquiring a permit in order to inject wastes, chemicals or other substances into the subsurface.	Alternative 12 includes injection of ORC into the groundwater. To ensure that the ORC injection complies with the substantive requirements of these regulations the proposed quantities to be injected will be included in the design and submitted to EPA and MA DEP for comment and concurrence and the groundwater monitoring program will assess the impact of the ORC. Also the contingency for groundwater recovery from the trenches receiving the ORC can be implemented to remove the ORC if determined to be necessary.	Relevant and Appropriate

APPENDIX F Table F-2
Hanscom AFB OU-3/IRP Site 21
Alternative 12 ARARs

Media	Requirement	Requirement Synopsis	Action to be Taken to Attain Requirement	Status
Action Specific ARARs				
Waste	***Federal***			
	Resource Conservation and Recovery Act (RCRA) Identification and Listing of Hazardous Wastes (40 CFR 261.24)	These requirements establish the maximum concentrations of contaminants for which the waste would be a RCRA-characteristic hazardous waste for toxicity.	Alternative 12 includes the disposal of recovered petroleum product and petroleum-saturated soil which may be classified as hazardous. Also this alternative includes groundwater treatment. The treatment method would have the potential to generate hazardous wastes such as activated carbon used to treat groundwater. Disposal of these wastes will comply with the substantive requirements of these regulations.	Applicable
	RCRA Standards Applicable to Generators of Hazardous Waste (40 CFR Part 262)	Massachusetts has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations.	Alternative 12 includes the disposal of recovered petroleum product and petroleum-saturated soil which may be classified as hazardous. Also this alternative includes groundwater treatment. The treatment method would have the potential to generate hazardous wastes such as activated carbon used to treat groundwater. Disposal of these wastes will comply with the substantive requirements of these regulations.	Applicable
	State			
	MA HWMR, Use and Management of Containers, 310 CMR 30.689; Storage and Treatment in Tanks, 310 CMR 30.699	These regulations set forth requirements for use and management of containers and tanks at hazardous waste facilities.	Packing and accumulation of recovered product, treatment sludges, and other material will adhere to these standards.	Relevant and Appropriate
	Massachusetts Hazardous Waste Management Rules (HWMR), 310 CMR 30.300-30.371, Requirements for Generators	Establishes requirements and standards for generators of hazardous waste that address general waste management measures, including the accumulation of hazardous waste prior to off-site disposal, preparing the hazardous wastes for shipment, and preparing appropriate waste manifests.	Alternative 12 includes the disposal of recovered petroleum product and petroleum-saturated soil which may be classified as hazardous. Also this alternative includes groundwater treatment. The treatment method would have the potential to generate hazardous wastes such as activated carbon used to treat groundwater. Disposal of these wastes will comply with the substantive requirements of these regulations.	Applicable
	Solid Waste Disposal Laws (MGL c. 21H, MGL c. 111, Sections 150A-150A 1/2) 310 CMR 19.100-151	These regulations govern the disposal of solid waste in Massachusetts	Disposal of solid waste resulting from remedial activities associated with this alternative will have to be disposed of properly in accordance with these laws.	Relevant and Appropriate
Air	***Federal***			
	RCRA, - Air Emission Standards for Equipment Leaks (42 USC 6924, 40 CFR 264, Subpart BB	Contains air pollutant emission standards for equipment leaks at hazardous waste TSD facilities. Contains design specifications and requirements for monitoring for leak detection. It is applicable to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10% by weight.	If petroleum product recovery or groundwater treatment involves management of hazardous waste with organics of at least 10 ppm, equipment will meet the design specifications, and will be monitored for leaks.	Relevant and Appropriate
	State			
	Massachusetts Air Pollution Control Regulations (MGL c.111 Sections 142A-142M, 310 CMR 7.09 and 7.18)	These regulations establish the standards and requirements for air pollution control in the Commonwealth. Section 7.09 details requirements for ambient air quality standards (dust, odor) during construction and demolition activities. Section 7.18 details requirements for air pollution controls for volatile organic compounds.	Alternative 12 includes excavation of petroleum-saturated soils and the excavation and material handling operations could generate ambient air quality issues. Air monitoring will be conducted during excavation and soil management activities such as the potential use of landfarming to treat petroleum contaminated soil on-site. Remedial actions will be conducted with air monitoring equipment, and engineering controls will be implemented as required to meet the regulations. Under CERCLA, only the substantive requirements of these regulations would apply to this alternative.	Applicable

ARARs - Applicable or relevant and appropriate requirements.
RCRA - Resource Conservation and Recovery Act.
CFR - Code of Federal Regulations.
CMR - Code of Massachusetts Regulations
CWA- Clean Water Act.
EPA - Environmental Protection Agency.
MGL - Massachusetts General Laws
USC - United States Code.
NPDES-National Pollutant discharge elimination system.
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act.
SDWA - Safe Drinking Water Act.
GAC - Granular Activated Carbon
VOC - Volatile Organic Compounds

Appendix G – MADEP Concurrence Letter

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

MSB 1/24/02

January 22, 2002

Mr. Thomas Best, Engineer
66 SPTG/CEV Bldg. 1810
120 Grenier Road
Hanscom Air Force Base
Bedford, MA 01731-1910

RE: RTN 3-0223 Hanscom Air Force Base - BEDFORD
Record of Decision, Operable Unit 3 – Site 21/Unit 1 Petroleum Release Site
State Concurrence to Record of Decision

Dear Mr. Best:

The Department of Environmental Protection (DEP) has received the Record of Decision (ROD) Final Report for Operable Unit 3 – Site 21/Unit 1 Petroleum Release Site (OU3 – Site 21). We have reviewed the document and found it to be consistent with the remedy parameters established in the June 2001 Proposed Plan. DEP concurs with the overall objective of the ROD to achieve groundwater drinking water standards, and with the selected remedy (installing three interceptor trenches with passive recovery systems and a network of enhanced recovery wells; enhancing biodegradation with the application of oxygen release compounds; monitoring groundwater and LNAPL; imposing land use controls/institutional controls; establishing groundwater containment and treatment and vapor enhanced recovery contingencies; and instituting five-year reviews.)

We have reviewed and concur with the comments provided by the U.S. Environmental Protection Agency on the ROD and with the comments and responses resulting from the August 1, 2001, Public Hearing. DEP has also reviewed the Applicable and Relevant or Appropriate Requirements and found them to be consistent with the remedy selection and protective of human health and the environment.

If you have any questions about this letter, please contact the Project Manager, Robert Campbell, at (617) 292-5732.

Sincerely,

Deirdre C. Menoyo

Deirdre C. Menoyo
Assistant Commissioner
Bureau of Waste Site Cleanup

RTN 3-0223 HAFB - Bedford
OU3-Site 21 Record of Decision

Cc: Mike Barry, EPA
Laurel MacKay, DEP/NERO
David Black, Bedford Board of Health
Elizabeth Bagdonas, Bedford Conservation Commission